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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,629	08/05/2003	Michael A. Siracki	05516.142002	7203

7590 10/29/2004

ROSENTHAL & OSHA L.L.P.
Suite 2800
1221 McKinney Street
Houston, TX 77010

EXAMINER

THOMPSON, KENNETH L

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,629

Applicant(s)

SIRACKI, MICHAEL A.

Examiner

Kenn Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>28 April 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tibbitts et al., U.S. 6,450,271 in view of Overstreet et al., U.S. 6,206,115

Regarding claim 1, Tibbitts et al. discloses in figures 1-6 a method of forming a tooth rock bit. Tibbitts et al. discloses attaching at least one cutting element (52) to a surface of a cone (48); and depositing a hardfacing layer (28) comprising a hardmetal coating on the at least one cutting element prior to the attaching (col. 5, lines 27-37). Tibbitts et al. does not disclose a steel cutting element. Overstreet et al. teaches use of a steel cutter (col. 1, lines 10-20) to permit use of relatively long teeth which enables aggressive gouging and scrapping. It would have been obvious to one having ordinary skill in the art at the time of the invention to arrange for the cutters disclosed by Tibbitts et al. to be formed of steel; as taught by Overstreet et al. to permit use of relatively long teeth which enables aggressive gouging and scrapping thereby increasing rate of penetration of soft formations with low compressive strengths.

As to claim 2, Tibbitts et al. discloses attaching comprises brazing.

As to claim 3, Tibbitts et al. discloses the depositing the hardfacing layer (28) sintering (col. 13, lines 6-15).

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As to claim 4, Tibbitts et al. discloses the hardfacing layer (28) comprises sintered tungsten carbide (col. 2, lines 52-55).

As to claim 6, Tibbitts et al. discloses the hardfacing layer has a thickness dependent on properties of formation to be drilled by the tooth rock bit (col. 5, lines 39-60).

As to claim 7, Tibbitts et al. discloses the depositing of the hardfacing layer comprises applying the hardfacing layer to a leading face of the at least one tooth (col. 8, lines 11-15).

As to claim 8, Tibbitts et al. discloses at least one tooth (52) comprises a gage tooth.

As to claim 9, Tibbitts et al. discloses the depositing of the hardfacing layer (28) comprises automatically applying the hardfacing layer (col. 2, lines 45-65).

Regarding claim 10, Tibbitts et al. discloses a tooth rock bit. Tibbitts et al. discloses attaching a first cutting element (52) and a second cutting element (52 at 56) to a surface of a cone. Tibbitts et al. discloses depositing a hardfacing layer (28) on the first cutting element and the second cutting element prior to the attaching (col. 5, lines 27-37). Tibbitts et al. does not disclose a steel cutting element. Overstreet et al. teaches use of a steel cutter (col. 1, lines 10-20) to permit use of relatively long teeth which enables aggressive gouging and scrapping. It would have been obvious to one having ordinary skill in the art at the time of the invention to arrange for the cutters disclosed by Tibbitts et al. to be formed of steel; as taught by Overstreet et al. to permit use of relatively long teeth which enables aggressive gouging and scrapping thereby increasing rate of penetration of soft formations with low compressive strengths.

Regarding claim 13, Tibbitts et al. discloses a tooth rock bit. Tibbitts et al. discloses

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forming at least one cutting element (52) having a facing layer (28). Tibbitts et al. discloses attaching at least one cutting element to a surface of a cone (48) and prior to the attaching, depositing a layer of hardfacing layer comprising hardmetal coating (col. 5, lines 27-37) on the at least one cutting element at substantially the same time as the forming of the at least one cutting element (col. 9, lines 2-9). Tibbitts et al. does not disclose a steel cutting element. Overstreet et al. teaches use of a steel cutter (col. 1, lines 10-20) to permit use of relatively long teeth which enables aggressive gouging and scrapping. It would have been obvious to one having ordinary skill in the art at the time of the invention to arrange for the cutters disclosed by Tibbitts et al. to be formed of steel; as taught by Overstreet et al. to permit use of relatively long teeth which enables aggressive gouging and scrapping thereby increasing rate of penetration of soft formations with low compressive strengths.

Regarding claim 14, Tibbitts et al. discloses at least one cutting element comprises a parent metal substrate and wherein the hardfacing layer comprises a hard metal composition (col. 1, lines 7-12).

Regarding claim 15, Tibbitts et al. discloses a cone (48) having a surface; and a preformed cutting element (52) attached to said surface, wherein the preformed cutting element comprises a hardfacing layer (28), wherein the hardfacing layer comprising a hardmetal coating is deposited prior to the preformed cutting element being attached to the surface (col. 5, lines 27-37). Tibbitts et al. does not disclose a steel cutting element. Overstreet et al. teaches use of a steel cutter (col. 1, lines 10-20) to permit use of relatively long teeth which enables aggressive

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gouging and scrapping. It would have been obvious to one having ordinary skill in the art at the time of the invention to arrange for the cutters disclosed by Tibbitts et al. to be formed of steel; as taught by Overstreet et al. to permit use of relatively long teeth which enables aggressive gouging and scrapping thereby increasing rate of penetration of soft formations with low compressive strengths.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tibbitts et al., U.S. 6,450,271 in view of Deane et al., U.S. 4,940,099.

As to claim 5, Tibbitts et al. discloses the hardfacing layer (28) is deposited to have a thickness between 7 microns and 0.005 inch (col. 5, lines 58-60). Tibbitts et al. does not disclose the thickness is between 0.030 inch and 0.180 inch. Deane et al. teaches use of a hardfacing layer thickness being between 0.030 in and 0.180 inch to allow for the body of the insert to be formed of a softer material to reduce fracture (col. 6, lines 29-41). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the hardfacing disclosed by Tibbitts et al. to be between 0.030 in and 0.180 inch, as taught by Deane et al. to allow for the body of the insert to be formed of a softer material to reduce fracture and improve the reliability of the drill.

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As to claim 11, Tibbitts et al. discloses the hardfacing layer (28) deposited on the first cutting element (52) and a hardfacing layer deposited on the second cutting element (52 at 56). Tibbitts et al. does not disclose the hardfacing layers are different. Deane et al. teaches in figure 4 use of a hardfacing layers (50,52) on cutting elements that are different since it is desirable under certain operating conditions and formations encountered to provide for increased hardness of the cutting elements (col. 4, lines 40-56). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the hardfacing layers disclosed by Tibbitts et al. to be different, as taught by Deane et al. since it is desirable under certain operating conditions and formations encountered to provide for increased hardness of the cutting elements. It is well known in the art that hard inserts will be particularly effective with hard sandstone while soft inserts will be particularly effective with shale.

As to claim 12, Deane et al. teaches use of depositing of the hardfacing layer on the first cutting element being applied differently from the hardfacing layer on the second cutting element (col. 5, lines 2-25).

Response to Arguments

Applicant's arguments with respect to claim 1, 10, 13 and 15 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenn Thompson whose telephone number is 703 306-5760. The examiner can normally be reached on 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J Bagnell can be reached on 703 308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

20 October 2004



Kenn Thompson
Primary Patent Examiner
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